

PATENT CLAIMS

1. Machining unit, especially a welding cell, for the machining of said workpieces (2), especially body parts of vehicles, with one or more said machining stations (15, 16) with said robots (18, 19, 20) and at least one said turning station (5), which has at least two said work stations (6, 7) for carrying out different operations simultaneously, **characterized in that** the said turning station (5) has at least two said multiaxially movable turning units (8, 9) arranged next to one another with said gripping tools (11, 12, 13) and with said working areas (10), which intersect each other at the said work stations (6, 7).

2. Machining unit in accordance with claim 1, **characterized in that** the said turning units (8, 9) are designed as said rotatable transport robots (8, 9).

3. Machining unit in accordance with claim 1 or 2, **characterized in that** the said transport robots (8, 9) are designed as stationary or unstationary, multiaxial articulated arm robots.

4. Machining unit in accordance with claim 1, 2 or 3, **characterized in that** the said transport robots (8, 9) are designed as heavy-load robots with a load carrying capacity of about 500 kg or more.

5. Machining unit in accordance with one of the above claims, **characterized in that** the said turning units (8, 9) carry said replaceable gripping tools (11, 12, 13) for said different workpieces

(2), especially different body models.

6. Machining unit in accordance with one of the above claims, **characterized in that** a plurality of said gripper storage units (14) are arranged in the said working area (10) of the said turning units (8, 9).

5 7. Machining unit in accordance with one of the above claims, **characterized in that** the said gripping tools (11, 12, 13) are designed as geometry grippers, which hold the said workpiece (2) in a defined position.

8. Machining unit in accordance with one of the above claims, **characterized in that** one said work station (6) is designed as a workpiece pick-up and the said other work station (7) as a joining
10 site, preferably a welding site.

9. Machining unit in accordance with one of the above claims, **characterized in that** the said turning station (5) with at least one said work station (6, 7) is connected in the said transfer direction (16) [sic - Tr.Ed.] to at least one said machining station (15, 16) equipped with one or more said robots (18, 19, 20), wherein the said work station(s) (6, 7) is/are located in the said
15 working area (10) of the said robots.

10. Machining unit in accordance with one of the above claims, **characterized in that** the said machining station (15, 16) has at least one said workpiece storage unit (22) for said replaceable robot tools (21) in the said working area (10) of the said robots (18, 19, 20).

11. Machining unit in accordance with one of the above claims, **characterized in that** the said machining station (15, 16) has one or more said component feeds (23, 24, 25) in the said working area (10) of the said robots (18, 19, 20).

12. Machining unit in accordance with one of the above claims, **characterized in that** the said machining station (15, 16) has one or more said stationary machining devices (26) in the said working area (10) of the said robots (18, 19, 20).

13. Machining unit in accordance with one of the above claims, **characterized in that** the said machining unit (1) has a said manual or automatic workpiece feed means (3) at the inlet of the said transfer line (17) and a said manual or automatic workpiece storage unit (4) at the outlet.

14. Machining unit in accordance with one of the above claims, **characterized in that** the said workpiece feed means (3) and/or said workpiece storage unit (4) forms a said work station (6) of a said turning station (5).